

**REMARKS/ARGUMENTS**

The Office Action mailed November 7, 2008, has been received and reviewed. Claims 1 through 26 are currently pending in the application. Claims 1 through 26 stand rejected. Applicant has canceled claim 5, amended claims 1 through 4 and 6 through 11, 13, 15, 19, 20 and 23, added new claims 27 through 36, and respectfully requests reconsideration of the application as amended herein.

No new matter has been added. Support for the amendments resides in the as-filed specification and drawings, and particularly, without limitation at page 5, third and fourth paragraphs, page 9, first full paragraph, page 10, first paragraph, and drawing FIGS. 1 and 2.

In addition, the term “catalyzing” has been amended to “catalyzing” throughout for consistency.

**Claim Objections**

Claims 2 through 10 are objected to because the first word of these claims should be changed from “A” to --The--. Appropriate correction has been made herein as required by the Examiner.

**35 U.S.C. § 112 Claim Rejections**

Claim 9 stands rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Applicant has amended claim 9 to overcome the rejection.

**35 U.S.C. § 102 Anticipation Rejections**

Anticipation Rejection Based on U.S. Patent Patent Application Publication No.  
2006/0086540 A1 to Griffith et al.

Claims 1 through 26 stand rejected under 35 U.S.C. § 102(f) as being anticipated by and substantially the same as that disclosed and claimed in Griffin et al. (U.S. Patent Application Publication No. 2006/0086540 A1). Applicant respectfully traverses this rejection, as hereinafter set forth.

First, the Office Action quotes 102(e) and 102(f) against claims 1-26, citing Griffin et al. as a reference. Applicants understand that the rejections under 102(f) is in error, as an art citation is not a proper basis for an assertion of 102(f). As explained in MPEP 2137.

The mere fact that a claim recites the use of various components, each of which can be argumentatively assumed to be old, does not provide a proper basis for a rejection under 35 U.S.C. 102(f)." **Ex parte Billottet, 192 USPQ 413, 415 (Bd. App. 1976).** **Derivation requires complete conception by another and communication of that conception by any means to the party charged with derivation prior to any date on which it can be shown that the one charged with derivation possessed knowledge of the invention.** Kilbey v. Thiele, 199 USPQ 290, 294 (Bd. Pat. Inter. 1978).

Emphasis added. Nothing in Griffin et al. provides a basis for a charge of derivation under §102(f). Moreover, there is no sufficient evidence in Griffin et al. to overcome the inventor's Declaration the he is the original and first inventor. *Id.*

Accordingly, the 35 U.S.C. § 102 anticipation rejections of claims 1 through 26 over Griffin et al. is improper because Griffin et al. is not prior art to the present application. More specifically, Griffin et al. has a U.S. filing date of October 14, 2005 and relies upon a British patent application 0423597.4 filed October 23, 2004.

The present application has a U.S. filing date of October 3, 2006, an effective international (PCT) filing date under 35 U.S.C. 371 of May 11, 2005 and a South African priority date of May 12, 2004. The Examiner is respectfully directed to the provisions of 35 U.S.C. 363 and 35 U.S.C. 119.

Accordingly, the anticipation rejection is improper and should be withdrawn.

Anticipation Rejection Based on U.S. Patent No. 6,601,662 to Matthias et al.

Claims 1 through 3, 5 through 13, 15 through 20, and 22 through 26 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Matthias et al. (U.S. Patent No. 6,601,662). Applicant respectfully traverses this rejection, as hereinafter set forth.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Brothers v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

In addition, “unless a reference discloses within the four corners of the document not only all of the limitations claimed but also **all of the limitations arranged or combined in the same way as recited in the claim**, it cannot be said to prove prior invention of the thing claimed and, thus, cannot anticipate under 35 U.S.C. § 102.” *Net Moneyin, Inc. v. Verisign, Inc.*, 545 F.3d, 1359, 1371 (Fed. Cir. Oct. 20, 2008) (emphasis added). A single prior art reference must “clearly and unequivocally” disclose the claimed invention “without any need for picking, choosing, and combining various disclosures not directly related to each other by the teachings of the cited reference.” *Id.* at 1371 (citing *In re Arkley*, 455 F.2d 586, 587 (C.C.P.A. 1972)).

The 35 U.S.C. § 102(e) anticipation rejection of claims 1 through 26 is improper because Matthias et al. fails to describe each and every element as set forth in the claims arranged in the same way as recited in the claims.

As to claim 1, Applicant respectfully asserts that Matthias et al. does not, in fact, describe each and every element thereof prior to the present amendments thereto. However, for purposes of enhanced clarity and providing a frame of reference for the examiner and not for purposes of avoiding the prior art, Applicant has amended claim 1 to recite, in pertinent part, “[a] polycrystalline diamond abrasive element having a region rich in catalyzing material and an annular region adjacent the peripheral surface extending away from the working surface toward but stopping short of the interface, the annular region or a substantial portion thereof being

located between at least a portion of the region rich in catalyzing material and the peripheral surface and being lean in catalyzing material.”

The regions 30 and 70 designated by the Examiner respectively comprise a diamond table in its entirety (30, see Col. 16, lines 7-12) and a working surface (70, see Col. 16, lines 15 and 16). Neither FIGS. 19A and B nor FIGS. 20A and B depict an *annular* region lean in catalyzing material. As may readily be appreciated from these drawing figures and the accompanying text at Col. 17, lines 37-45, there are no *annular* regions in either of these depicted elements whatsoever, either lean in catalyzing material or not. The term “annular” is defined as “of, relating to, or forming a ring,” Webster’s Ninth New Collegiate Dictionary, 1989.

Claim 2 is allowable as depending from claim 1.

Claim 3 is allowable as depending from claim 1 and, further, as Matthias et al. does not appear to describe an annular region or portion thereof lean in catalyzing material and extending into the polycrystalline diamond from the peripheral surface a depth of about 30  $\mu\text{m}$  to about 500  $\mu\text{m}$ .

Claim 5 has been canceled, rendering the rejection moot, and subject matter of claim 5 has been incorporated into claim 1 as amended herein.

Claim 6 has been amended to depend from claim 1, and is allowable as depending therefrom.

Claim 7 has been amended to depend from claim 1, is allowable as depending from claim 1 and, further, as Matthias does not appear to describe “wherein the region rich in catalyzing material comprises more than one region, *which differ in average particle size or composition.*”

Claim 8 is allowable as depending from claim 1.

Claim 9 is allowable as depending from claim 1.

Claim 10 is allowable as depending from claim 1.

Claim 11 is allowable for reasons similar to claim 1. Again, the Matthias et al. reference as relied upon by the Examiner fails to describe “*a substantially annular* region lean in catalyzing material adjacent the peripheral surface commencing at a peripheral edge of the working surface and extending away from the working surface toward the interface *but spaced therefrom*, at least

another region of the polycrystalline diamond layer being rich in catalyzing material.” (emphasis added)

Claim 12 is allowable as depending from claim 11.

Claim 13 is allowable as depending from claim 11.

Claim 15 is allowable as depending from claim 11 and, further, because Matthias et al. fails to describe “wherein the at least another region rich in catalysing material itself comprises a plurality of regions rich in catalyzing material, which regions rich in catalyzing material differ in at least one of average particle size and chemical composition.

Claims 16 through 18 are each allowable as depending from claim 11.

Claim 19 is allowable as Matthias et al. does not appear to describe “[a] polycrystalline diamond abrasive element having a region adjacent at least a portion of the working surface lean in catalysing material and a *substantially annular* region lean in catalyzing material adjacent the peripheral surface, *contiguous with the region and extending away from the working surface toward the interface and spaced from the interface.*” (emphasis added)

Claim 20 is allowable as depending from claim 19.

Claim 22 is allowable as depending from claim 19.

Claim 23 is allowable as depending from claim 19 and, further, because Matthias et al. do not appear to describe “wherein the another region rich in catalysing material itself comprises a plurality of regions rich in catalyzing material, which regions rich in catalyzing material *differ in at least one of average particle size and chemical composition.*” (emphasis added)

Claims 24 through 26 are each allowable as depending from claim 19.

#### Anticipation Rejection Based on U.S. Patent No. 6,344,149 to Oles

Claims 1, 2, 5 through 12, 15 through 19, and 22 through 26 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Oles (U.S. Patent No. 6,344,149). Applicant respectfully traverses this rejection, as hereinafter set forth.

As to claim 1, Applicant respectfully asserts that Oles does not, in fact, describe each and every element thereof prior to the present amendments thereto. However, for purposes of enhanced clarity and providing a frame of reference for the examiner and not for purposes of

avoiding the prior art, Applicant has amended claim 1 to recite, in pertinent part, “[a] polycrystalline diamond abrasive element having a region rich in catalyzing material and an annular region adjacent the peripheral surface extending away from the working surface toward but stopping short of the interface, the annular region or a substantial portion thereof being located between at least a portion of the region rich in catalyzing material and the peripheral surface and being lean in catalyzing material.” In the referenced portions of Oles, there is no *annular* region lean in catalyzing material, and any region lean in catalyzing material extending from the rake surface 80 down the flank surface 82 extends *all the way* to the backing 62. See FIGS. 6 and 7, and Col. 7, lines 21 through 40.

Claim 2 is allowable as depending from claim 1.

Claim 5 has been canceled, rendering the rejection moot, and subject matter of claim 5 has been incorporated into claim 1 as amended herein..

Claim 6 has been amended to depend from claim 1, and is allowable as depending therefrom.

Claim 7 has been amended to depend from claim 1, is allowable as depending from claim 1 and, further, as Oles does not appear to describe “wherein the region rich in catalyzing material comprises more than one region, *which differ in average particle size or composition.*”

Claim 8 is allowable as depending from claim 1.

Claim 9 is allowable as depending from claim 1 and, further,

Claim 10 is allowable as depending from claim 1.

Claim 11 is allowable for reasons similar to claim 1. Again, the Oles reference as relied upon by the Examiner fails to describe “*a substantially annular* region lean in catalyzing material adjacent the peripheral surface commencing at a peripheral edge of the working surface and extending away from the working surface toward the interface *but spaced therefrom*, at least another region of the polycrystalline diamond layer being rich in catalyzing material.” (emphasis added)

Claim 12 is allowable as depending from claim 11.

Claim 15 is allowable as depending from claim 11 and, further, because Oles fails to describe “wherein the at least another region rich in catalyzing material itself comprises a

plurality of regions rich in catalyzing material, which regions rich in catalyzing material differ in at least one of average particle size and chemical composition.

Claims 16 through 18 are each allowable as depending from claim 11.

Claim 19 is allowable as Oles does not appear to describe “[a] polycrystalline diamond abrasive element having a region adjacent at least a portion of the working surface lean in catalysing material and a *substantially annular* region lean in catalyzing material adjacent the peripheral surface, *contiguous with the region and extending away from the working surface toward the interface and spaced from the interface.*” (emphasis added)

Claim 22 is allowable as depending from claim 19.

Claim 23 is allowable as depending from claim 19 and, further, because Oles. does not appear to describe “wherein the another region rich in catalyzing material itself comprises a plurality of regions rich in catalyzing material, which regions rich in catalyzing material *differ in at least one of average particle size and chemical composition.*” (emphasis added)

Claims 24 through 26 are each allowable as depending from claim 19.

### 35 U.S.C. § 103(a) Obviousness Rejections

#### Obviousness Rejection Based on U.S. Patent No. 6,601,662 to Matthias et al.

Claims 4, 14, and 21 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Matthias et al. (U.S. Patent No. 6,601,662). Applicant respectfully traverses this rejection, as hereinafter set forth.

To establish a *prima facie* case of obviousness the prior art reference (or references when combined) **must teach or suggest all the claim limitations.** *In re Royka*, 490 F.2d 981, 985 (CCPA 1974); *see also* MPEP § 2143.03. Additionally, the Examiner must determine whether there is “an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1740-1741, 167 L.Ed.2d 705, 75 USLW 4289, 82 U.S.P.Q.2d 1385 (2007). Further, rejections on obviousness grounds “cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *Id* at 1741, quoting *In re Kahn*, 441, F.3d 977, 988 (Fed. Cir. 2006). Finally, to establish a *prima facie* case of

obviousness there must be a reasonable expectation of success. *In re Merck & Co., Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986). Furthermore, the reason that would have prompted the combination and the reasonable expectation of success must be found in the prior art, common knowledge, or the nature of the problem itself, and not based on the Applicant's disclosure. *DyStar Textilfarben GmbH & Co. Deutschland KG v. C. H. Patrick Co.*, 464 F.3d 1356, 1367 (Fed. Cir. 2006); MPEP § 2144. Underlying the obvious determination is the fact that statutorily prohibited hindsight cannot be used. *KSR*, 127 S.Ct. at 1742; *DyStar*, 464 F.3d at 1367.

The 35 U.S.C. § 103(a) obviousness rejection of claims 4, 14 and 21 is improper because Matthias et al. fails to describe "wherein the annular region extends from the working surface toward the interface *to a depth of at least half the overall thickness of the polycrystalline diamond layer, but stops short of the interface by at least about 500µm.*" (emphasis added), as recited in each of claims 4, 14 and 21. It is apparent that the Examiner may be misreading the claim language, which does not require a catalyst-rich region of a least 500 micrometers but, rather, that the claimed annular region (at least a portion being lean in catalyzing material) extends toward the interface between the polycrystalline diamond layer and the substrate 1) at least half the thickness of the diamond layer *but* 2) stops short of the interface by at least about 500 µm (500 micrometers).

Further, the nonobviousness of independent claims 1, 11 and 19 precludes a rejection of claims 4, 14 and 21 which respectively depend therefrom because a dependent claim is obvious only if the independent claim from which it depends is obvious. See *In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988), *see also* MPEP § 2143.03. Therefore, the Applicant requests that the Examiner withdraw the 35 U.S.C. § 103(a) obviousness rejection of claims 4, 14 and 21.

Obviousness Rejection Based on U.S. Patent No. 6,344,149 to Oles in View of U.S. Patent No. 6,601,662 to Matthias et al.

Claims 3, 4, 13, 14, 20 and 21 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Oles (U.S. Patent No. 6,344,149) in view of Matthias et al. (U.S. Patent No. 6,601,662). Applicant respectfully traverses this rejection, as hereinafter set forth.

Claim 3 is allowable as depending from claim 1 and, further, as Oles in view of Matthias et al. does not appear to teach or suggest an annular region or portion thereof lean in catalyzing material and extending into the polycrystalline diamond from the peripheral surface a depth of about 30  $\mu\text{m}$  to about 500  $\mu\text{m}$ . Oles admittedly fails to disclose a precise depth of a region of a polycrystalline diamond compact which is lean in catalyzing material. The claim requires a depth for the claimed *annular* region or portion thereof lean in catalyzing material extending into the polycrystalline diamond *from the peripheral surface* (e.g., from the side of the diamond layer) a depth of from about 30  $\mu\text{m}$  to about 500  $\mu\text{m}$ . Matthias et al. teaches a region lean in catalyzing material of about 100 micrometers depth. However, Matthias does not appear to teach or suggest an annular region lean in catalyzing material. Oles teaches a very brief time for removing catalyst from an exterior region of his diamond layer (Col. 5, lines 45 through 54) and a very thin depth from which the catalyst has been removed (*see, e.g.*, Claim 19 reciting an exterior region thickness of between 10 and 15 microns). The purpose of removing catalyst in Oles is to provide for infiltration of CVD-applied diamond between diamond particles where the catalyst has been removed so as to provide a specially made, roughened surface for material cutting (Col. 2, lines 1 through 15, Col. 6, line 67 though Col. 7, line 20). Matthias et al. removes catalyst to a depth of at least 100 micrometers to enhance the thermal stability of the surface of the diamond table. Thus, there is no reason to remove catalyst from the diamond table of Oles to any depth as disclosed by Matthias, as the depths employed by Matthias are for a different purpose than the depth of Oles and would not serve to enhance receipt of CVD diamond between diamond particles significantly below the surface of the polycrystalline diamond layer.

Claims 4, 14 and 21 are each allowable as respectively depending from claim 1, 11 and 19 and, because the combination of Oles and Matthias et al. fails to teach or suggest “wherein the annular region extends from the working surface toward the interface *to a depth of at least half the overall thickness of the polycrystalline diamond layer, but stops short of the interface by at least about 500  $\mu\text{m}$ .*” (emphasis added), as recited in each of claims 4, 14 and 21. It is apparent, as noted above in the context of another rejection, that the Examiner may be misreading the claim language, which does not require a catalyst-rich region of a least 500 micrometers but, rather, that the claimed annular region (at least a portion being lean in catalyzing material)

extends toward the interface between the polycrystalline diamond layer and the substrate 1) at least half the thickness of the diamond layer *but* 2) stops short of the interface by at least about 500  $\mu\text{m}$  (500 micrometers). Oles fails to teach or suggest an annular, catalyst-lean region. To the extent Oles teaches a catalyst-lean region extending from a working surface toward an interface with a substrate, Oles teaches only extending the region to the interface. Thus, not only does the region not stop short of the interface by at least about 500  $\mu\text{m}$ , but it does not stop short at all. Matthias does not cure this deficiency.

Claim 13 is allowable as depending from claim 11.

Claim 20 is allowable as depending from claim 19.

### New Claims 27 through 36

New claims 27 through 36 have been added to more completely define the present invention with respect to the state of the art, and are believed to be patentable over the art of record.

**ENTRY OF AMENDMENTS**

The amendments to claims 1 through 4, 6 through 11, 13, 15, 19, 20 and 23 and new claims 27 through 36 above should be entered by the Examiner because the amendments are supported by the as-filed specification and drawings and do not add any new matter to the application.

**CONCLUSION**

Claims 1 through 4 and 6 through 36 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, the Examiner is respectfully invited to contact Applicant's undersigned attorney.

Respectfully submitted,  
FROMMER LAWRENCE & HAUG LLP

By: /Brian M. McGuire/  
Ronald R. Santucci  
Reg. No. 28,988  
Brian M. McGuire  
Reg. No. 55,445  
(212) 588-0800